

Tests for Carcinogenicity

Laboratory studies of the carcinogenicity of environmental and industrial chemicals are conducted by the National Toxicology Program (NTP). The NTP is a cooperative effort to coordinate toxicology research and testing activities within the Department of Health and Human Services. The NTP receives funds for conducting its studies from the National Institute of Environmental Health Sciences (NIEHS), the National Institute for Occupational Safety and Health, and the National Center for Toxicological Research. Final reports on more than 400 chemicals, which have been tested for carcinogenicity, have been published and NTP currently has numerous chemicals in long-term testing; others are under review for testing. Chemicals are added to the list as the need for evaluation arises.

The National Cancer Institute (NCI) helps select the chemicals to be tested. The selection of a chemical for study is based on the evaluation of many variables relating to exposure and toxicity of the chemical. Scientists carefully examine the annual production estimates for industrial chemicals, the extent to which workers and consumers might be exposed to industrial and environmental chemicals, and the route of exposure. Scientists also evaluate other data on toxicity and how the chemicals may react in the body. NCI frequently carries out short-term toxicity tests on chemicals before nominating them to NTP.

The identification of substances that cause or contribute to the development of numerous types of cancer in humans poses many problems. One of these is the time element. In some

cases, 20, 30, or even 40 years may elapse between exposure to a cancer-causing agent and the appearance of the disease. After such a lapse of time, it is difficult, if not impossible, to pinpoint the responsible agent.

Another problem in identifying potential carcinogens is that, of course, scientists cannot work directly with humans to test the substances; they must instead use animal models or human cells *in vitro* (outside of the body, in an artificial setting such as a test tube) and apply the test results to humans. Other problems concern such variables as the level, duration, or frequency of exposure necessary to cause cancer. Scientists must carefully weigh all these variables in designing experiments and in interpreting results of tests for carcinogenicity.

Additional information about tests for carcinogenicity is available on the NIEHS Web site at <http://www.niehs.nih.gov> on the Internet. General information about substances under study at NTP is available from the National Toxicology Program Liaison and Scientific Review Office. The address is Post Office Box 12233, MD A3-01, Research Triangle Park, NC 27709-2233; the telephone number is 919-541-0530. More specific information about NTP studies and reports, such as the *Report on Carcinogens*, is available from the NIEHS/NTP Central Data Management Office, Post Office Box 12233, MD E1-02, Research Triangle Park, NC 27709-2233; the telephone number is 919-541-3419, and the e-mail address is CDM@niehs.nih.gov. NIEHS and NTP documents are also available at <http://ntp-server.niehs.nih.gov> on the Internet.

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1-800-4-CANCER (1-800-422-6237)

TTY (for deaf and hard of hearing callers): 1-800-332-8615

NCI Online***Internet***

Use <http://www.cancer.gov> to reach NCI's Web site.

CancerMail Service

To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

CancerFax® fax on demand service

Dial 301-402-5874 and listen to recorded instructions.

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